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(54) Zn-coated Wire

(57) A coated wire consisting of:  
 carbon from 0.08 to 0.15% by  
 weight,  
 manganese from 0.30 to 0.60% by  
 weight,  
 silicon from 0.15 to 0.30% by  
 weight,  
 sulphur from zero to 0.04% by  
 weight,  
 phosphorus from zero to 0.04% by  
 weight,  
 iron balance  
 is made by a process comprising the

following steps:

- (a) descaling a rod of an alloy having the composition defined above;
- (b) phosphating the said rod by treatment with phosphoric acid;
- (c) drawing the phosphated rod to reduce the diameter thereof;
- (d) heat-treating the drawn rod;
- (e) pickling the heat-treated rod;
- (f) galvanising the pickled rod by hot-dipping in a bath of molten zinc; and,
- (g) wet-drawing the galvanised rod to the final required diameter.

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# **SPECIFICATION Coated Wire**

This invention relates to coated wire for use, particularly, but not exclusively, for the manufacture of furniture, and to a method for the production of such wire.

According to the present invention, there is provided coated wire comprising galvanised wire composed of an alloy consisting of:

- 10 carbon from 0.8 to 0.15% by weight,  
manganese from 0.30 to 0.60% by weight,  
silicon from 0.15 to 0.30% by weight,  
sulphur from zero to 0.04% by weight,  
15 phosphorus from zero to 0.04% by weight,  
iron, balance.

A suitable diameter for the wire is from 0.70 to 0.90 mm.

The galvanisation is preferably carried out by hot-dipping in a bath of molten zinc.

- 20 Further according to the present invention there is provided a method of producing the wire of the invention, comprising the sequential steps of:
  - (a) descaling a rod of an alloy having the
  - 25 composition defined above;
  - (b) phosphating the said rod by treatment with phosphoric acid;
  - (c) drawing the phosphated rod to reduce the diameter thereof;
  - 30 (d) heat-treating the drawn rod;
  - (e) pickling the heat-treated rod;
  - (f) galvanising the pickled rod by hot-dipping in a bath of molten zinc; and,
  - (g) wet-drawing the galvanised rod to the final
  - 35 required diameter.

By way of example, the rod may have an initial diameter of 5.5 mm which reduces in the first drawing step defined as step (c) above to a diameter of from 2.2 to 2.6 mm, and, in the final

- 40 step, step (g) defined above, a final finished diameter of from 0.7 to 0.9 mm is formed.

The pickling, required by step (e) above, may be effected by treatment with hydrochloric acid followed, preferably, by water washing and drying prior to the galvanising step, step (f).

- 45 The wetdrawing in step (g) gives a smooth, bright finish to the wire, making it suitable for use in the manufacture of furniture articles where appearance is important.

- 50 A suitable material for the wire is mild steel to Japanese standard J1S G 3505 of SWRM 6.  
The wire is softened by the heat-treatment.

## **Claims**

- 1. Coated wire comprising galvanised wire
- 55 composed of an alloy consisting of:

carbon from 0.8 to 0.15% by weight,  
manganese from 0.30 to 0.60% by weight,  
silicon from 0.15 to 0.30% by weight,  
sulphur from zero to 0.04 by weight,  
60 phosphorus from zero to 0.04% by weight,  
iron, balance.

- 2. A method of producing the wire of the invention, comprising the sequential steps of:
  - (a) descaling a rod of an alloy having the
  - 65 composition defined above;
  - (b) phosphating the said rod by treatment with phosphoric acid;
  - (c) drawing the phosphated rod to reduce the diameter thereof;
  - 70 (d) heat-treating the drawn rod;
  - (e) pickling the heat-treated rod;
  - (f) galvanising the pickled rod by hot-dipping in a bath of molten zinc; and,
  - (g) wet-drawing the galvanised rod to the final
  - 75 required diameter.

3. A method according to claim 2, in which the galvanisation is carried out by hot-dipping in a bath of molten zinc.